DELAWARE HEALTH AND SOCIAL SERVICES
Division of Public Health

Frequently Asked Questions

1,1-DICHLOROETHANE

What is 1,1-DICHLOROETHANE?

1,1-dichloroethane is a man-made liquid. It has no color and is oily. It rapidly turns into a vapor at room temperature. 1,1-dichloroethane has a sweet odor like ether. It burns easily. When 1,1-dichloroethane is released into the environment, it usually vaporizes.

Where can 1,1-dichloroethane be found and how is it used?

Almost all of the 1,1-dichloroethane that factories discharge goes into the air. When a chemical called 1,1,1-trichloroethane breaks down and contacts air, it creates 1,1-dichloroethane. 1,1-dichloroethane does not dissolve easily in water. The small amounts released into water remain there for about five days. However, most of it vaporizes and remains in the air for about two months. Airborne 1,1-dichloroethane is either washed out by rain or it is broken down by sunlight. Any amount reaching the ground can either vaporize or flow into groundwater.

1,1-dichloroethane is primarily used to make 1,1,1-trichloroethane and other chemicals. Uses include dissolving paint, varnish and finish removers, and removing grease. In the past, 1,1-dichloroethane was used to put people to sleep during surgery. However, it is no longer used in this way.

How can people be exposed to 1,1-dichloroethane?

You could be exposed to 1,1-dichloroethane through:

Breathing air containing 1,1-dichloroethane, particularly in industrial areas or near hazardous waste sites.

Drinking tap water with 1,1-dichloroethane in it. 1,1-dichloroethane has been found in drinking water in the United States. Since the chemical quickly evaporates, water near hazardous waste sites is not likely to contain high levels of 1,1-dichloroethane.

Touching material at work that contacted 1,1-dichloroethane. You can also touch soil containing 1,1-dichloroethane. Since the chemical quickly evaporates, soil around hazardous waste sites is not likely to contain high levels of 1,1-dichloroethane.

How does 1,1-dichloroethane work?

1,1-dichloroethane quickly enters your body when it is in the air you breathe or when you swallow water containing it. It can also enter through your skin. Animal studies suggest that the 1,1-dichloroethane that is breathed in or swallowed may go to many organs of the body. Most of the 1,1-dichloroethane taken in is exhaled within two days. A small part of the 1,1-dichloroethane taken in is broken down by the body and quickly exits in the breath or urine.

How can 1,1-dichloroethane affect my health?

Little is known about the effects of 1,1-dichloroethane on people's health. The chemical is no longer used to put people to sleep during surgery because it harmed the heart. Animal studies have shown that 1,1-dichloroethane can cause kidney disease after long-term exposure to high levels in air. When pregnant animals breathed a high level of the chemical, their babies grew more slowly after they were born. In one study, 1,1-dichloroethane caused cancer in rats that were fed large doses of the chemical for their entire lives.

How is 1,1-dichloroethane poisoning treated?

There is no treatment to fight the effects of 1,1-dichloroethane. A doctor will treat the symptoms.

What should I do if exposed to 1,1-dichloroethane?

If you breathe 1,1-dichloroethane, get fresh air and rest. Get medical help right away.

If you should get 1,1-dichloroethane on your skin, take off your clothes. Wash your skin with lots of soapy water. Cover the skin with an anti-bacterial cream to prevent infections. Get medical help right away.

If you get 1,1-dichloroethane in your eyes, act quickly. Remove your contacts if you can do it easily. Rinse with plenty of clean water for at least 15 minutes. Get medical help right away.

What factors limit use or exposure to 1,1-dichloroethane?

The most common place to be exposed is at work. Safe work practices can limit exposure. Areas where 1,1-dichloroethane is used should be closed off. An exhaust system should be used to pull 1,1-dichloroethane away from these areas. There should also be a source of fresh air. A respirator should be worn to protect breathing. Wear the right clothing for protection. Wash clothing right away if it contacts the chemical and always wash clothing at the end of your shift.

Is there a medical test to show whether I've been exposed to 1,1-dichloroethane?

Tests are available to show if 1,1-dichloroethane is in your urine, blood, breath and body tissues. The tests must be done soon after exposure, since most of the 1,1-dichloroethane is exhaled within two days. These tests cannot tell you when the exposure occurred or if health effects will occur.

Technical information for 1,1-dichloroethane

CAS Number: 75-34-3

Chemical Formula: $C_2H_4Cl_2$

Carcinogenicity (EPA): Not classifiable as to human carcinogenicity.

MCL (Drinking Water): There is no MCL for 1,1-dichloroethane

OSHA Standards: 100 ppm (400 mg/m_3 in air.)

NIOSH Standards: 100 ppm in air. IDLH: 3000 ppm

References and Sources

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. *Toxicological profile for 1,1-Dichloroethane.* Atlanta, GA: U.S. Department of Health and Human Services.